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ABSTRACT

Research has indicated that children learn material evaluated as positive more readily than negatively assessed material. This finding is termed a positive reinforcement value effect. The study extended the research in this area, focusing on the effects of intelligence, self-concept, and age on the affective learning styles of 55 children, (6-11 years old, including mildly retarded and intellectually gifted Ss). Significant results were found for age and IQ in the learning of word paired associates, with older Ss and more intelligent Ss learning the word pairs faster than the younger Ss and low IQ Ss, respectively. Less intelligent Ss exhibited greater positive reinforcement value effects than the more intelligent Ss. High self-concept Ss also showed greater positive reinforcement value effects than Ss with low self-concepts. Possible explanations are suggested and education implications for helping special education children learn in the classroom are reviewed. (Author/CL)

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Affective Learning Styles of Children: Implications for Special Education

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Abstract

Past research has indicated that children learn material evaluated as positive more readily than negatively assessed material. This finding is termed a positive reinforcement value effect. The present study extended the research in this area, focusing on the effects that intelligence, self-concept, and age have on the affective learning styles of children. Significant results were found for age and IQ in the learning of word paired associates, with older subjects and more intelligent subjects learning the word pairs faster than the younger subjects and low IQ subjects, respectively of greater interest, less intelligent subjects exhibited greater positive reinforcement value effects than the more intelligent subjects. High self-concept subjects also showed greater positive reinforcement value effects than subjects with low self-concepts. The authors suggest possible explanations and educational implications for helping special education children learn in the classroom.

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The Affective Learning Styles of Children: Implications For Special Education

Individuals tend to learn more readily content which they believe is important or meaningful to them (Rychlak, 1977). More specifically, the students evaluate situations or stimuli as being positive or negative, and then tend to encode or learn positively assessed stimuli more quickly than negatively assessed stimuli. Many factors mediate this process, including intelligence, self-concept, and the nature of the learning task (Rychlak, 1977).

Affective assessment refers to the process of judging one's concepts or premises, characterizing them as either positive or negative in nature and meaningfulness (Rychlak, 1977). Reinforcement value (RV) is the operationalization of affective assessment. Reinforcement value is typically operationalized by having subjects prerate for likability materials which they will be asked to learn. When subjects rate items as good-bad or like-dislike, the resulting measure of meaningfulness is termed the reinforcement value (RV) of the items. More important, the reinforcement value of material may influence the rate of learning. Specifically, the learning of liked words more readily than disliked words is termed a positive reinforcement value effect. Similarly, the learning of the disliked words more readily than liked words is termed a negative reinforcement value effect.

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Children possess a capacity to assess material in terms of evaluative preference from an early age (Rychlak, 1977). Research has found that by the second grade students are able to judge verbal items as either positive or negative (DiVesta, 1966; DiVesta & Walls, 1969). However, it appears that only the older children use this affective assessment in their acquisition and recall of the items (Kail & Schroll, 1974; Cermak, Sagotsky, & Moshier, 1972).

Numerous studies reported a positive reinforcement value effect in the affective assessment of learning tasks with both children and adults. Rychlak and his colleagues (Abramson, Tasto, & Rychlak, 1969; Rychlak, 1966) found that high school students learned consonant-vowel-consonant (CVC) trigrams (e.g., "lop," "gom") they judged as positive more readily than negatively assessed trigrams. Positive reinforcement value effects were also found in the learning of designs, paintings, faces, and names of designs (Rychlak, 1975; Rychlak, Galster, & McFarland, 1972). These results suggest that affective assessment and the positive RV effect operates for a variety of learning tasks.

Several studies have been conducted investigating the relationship between self-concept and affective assessment in verbal learning tasks. Rychlak, Carlson, and Dunning (1974) found that high school subjects with high self-concepts learned CVC trigrams they evaluated as positive much more readily than negatively judged trigrams. Low self-concept students, however, reversed this positive RV effect and learned their negatively judged trigrams more readily than the positively judged trigrams.

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A similar study found that students with high self-concepts learned nouns they judged as positive more readily than negatively evaluated nouns, while students with low self-concepts did the reverse (August, Rychlak, & Felkner, 1975). The assessment of items as positive may have increased meaning for students with high self-concepts because it is consistent with their positive self-image; therefore, the liked items are learned more readily. In contrast, for the low self-concept child, positive assessments are incongruent with his or her negative self-concept; thus, negative assessment may become more meaningful and negatively judged items are learned more readily.

This research suggests that self-concept has a significant influence on the affective learning styles of both children and adults. While most people tend to learn positively assessed material faster than negatively assessed material, persons with low self-esteem follow a different pattern. Low self-concept persons tend to learn negatively evaluated material more readily. This effect may have important implications for classroom instruction since how children feel about themselves can affect the rate of learning and the amount and type of content they learn.

August and Rychlak (1978) investigated the role of intelligence and task difficulty in the affective learning styles of children with high and low self-concepts. The researchers found that children with high IQs learned paired associate words faster than the low IQ children, and that the children with high self-concepts

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learned their paired associate words more readily than the low self-concept subjects. In terms of affective assessment, the results indicated that the high self-concept subjects learned their positively assessed word pairs more readily than their negatively assessed word pairs, while the low self-concept subjects reversed this positive RV effect and learned their disliked rated word pairs faster than their liked word pairs. These results were consistent with previous research (e.g., August, Rychlak, & Felkner, 1975; Rychlak, Carlson, & Dunning, 1974).

August and Rychlak had also predicted that the subjects with lower IQ's would show greater RV effects than the more intelligent subjects, but this was not supported by their findings. They had hypothesized that deficient verbal learning strategies would cause the low IQ subjects to be more sensitive to the connotative features of the learning task. However, August and Rychlak's design included subjects in one low IQ group possessing IQ's ranging from 89-92. These IQ scores actually fall at the lower end of the average range. Therefore, calling into question their negative finding.

It was also reported that the self-concept effects were strongest for the low IQ subjects. At the high IQ level, both the high and low self-concept subjects showed no significant preference in learning liked word pairs more than disliked word pairs. At the low IQ level, however, the high self-concept

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subjects learned their liked pairs significantly faster than their disliked pairs, whereas the low self-concept subjects reversed this positive RV effect and tended to learn their disliked pairs more readily.

The purpose of the present research was to expand upon August and Rychlak's (1978) study by including different age ranges to determine whether intelligence and self-concept have varying effects on the affective learning styles of children of different ages. In addition, a more appropriate low IQ group was used in the present study than in August and Rychlak's (1978) study. The mean of the low IQ group in their study fell at the lower end of the average range of intelligence. The mean of the low IQ group in the present study fell in the mildly mentally retarded classification range, and all of the subjects in the low IQ group were enrolled in special education classes for the mildly retarded.

Method

Subjects

The 55 subjects consisted of 32 male and 23 female students residing in a large midwestern community of 80,000. Twenty-seven subjects were enrolled in the primary grades (age range 6.0-8.5 years) and the remaining 28 subjects at the intermediate level (age range 8.7-11.11 years). The 25 low IQ subjects were classified as mildly mentally retarded according to state and federal criteria ($\underline{M}$ IQ=71.75) and were enrolled in special education classes for the educable mentally retarded. These classes were part of the

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local public school system. The 30 high IQ subjects (M IQ=125.42) were enrolled in the Illinois State University Laboratory School. The Laboratory School student population mirrors the local community in terms of socioeconomic level and race.

Measures

All subjects were administered the Joseph Pre-Primary and Primary Self-Concept Screening Test (JPPSST), (Joseph, 1979). This is an individually administered test which yields a global self-concept score based on five differentiated dimensions: significance, competence, power, general evaluative contentment, and virtue. This test consists of 15 questions, 13 of which pertain to illustrations which are presented two at a time and are opposites of each other. For example, one question has an illustration of a boy who is playing alone and one of a boy who is playing with many friends, and the subject is asked to choose which illustration best depicts what he or she experiences most often.

All subjects were also administered a word evaluation scale. This scale was specifically designed to measure affective assessment for a list of common words. Each word was presented visually and orally by the experimenter, and the subject assessed each word as being liked or disliked by drawing a smile or a frown, respectively, on a blank face which accompanied each word.

Subjects in each age group were assigned into either high or low IQ groups based on their scores on an individual IQ test (WISC-R

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or Stanford Binet) administered by trained graduate students or certified school psychologists. Subjects were placed into high or low self-concept groups according to their scores on the JPPSST.

Procedures

All subjects participated in two sessions. During the first session, lasting 15-30 minutes, each subject was administered the JPPSST and the word evaluation scale. During the second session, lasting 30-75 minutes, the word evaluation scale was readministered to assess the reliability of the initial ratings. The ratings on this scale were tabulated by forming a list of the subject's liked words and disliked words, and only those words which were rated on both occasions as liked or disliked were eligible for use in the learning task. This was done for reliability purposes and was consistent with the August and Rychlak (1978) study. Paired associate words were then formed by pairing liked with liked and disliked with disliked. Each subject's paired associate list included five liked word pairs and five disliked word pairs, for a total of 10 word pairs in each list.

During the second session, all subjects were also administered the learning task. This consisted of one acquisition trial (presentation of the word pairs) followed by a number of recall trials (presentation of the stimulus words only). During the recall trials the subject was presented with one word of the word pair and was required to correctly name its paired associate. This procedure

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was continued until the subject reached the criterion of two trials of perfect for all 10 word pairs. The number of trials to reach criterion was the dependent variable. The word pairs were presented on 3 x 5 index cards and also read orally by the experimenter. During the acquisition trial each word pair were exposed for 5 seconds with a 2 second interval between exposures. During the recall trials each stimulus word was exposed for 5 seconds, which was the time allowed for the subject to respond. Five seconds were allowed between the presentation of each list. The correct response word always followed the subject's response. The experimenter also orally indicated the correctness of the subject's response.

Results

Effects of Age, IQ, and Self-Concept on learning Rate

Each subject's total list performance was obtained by recording the number of trials it took to reach the criterion for all 10 word pairs of the list. Each word pair had a trials-to criterion score, which was the number of trials it took for the subject to correctly respond to the stimulus word on two consecutive occasions without a subsequent error. These ten scores were then added together to obtain the total list performance. A 2^4 (Age x IQ x Self-Concept x Reinforcement Value) factorial analysis of variance was utilized to analyze the data.

Main effects were found for age, $F(1,47)=20.72$, $p\leq.00$, and IQ, $F(1,47)=82.21$, $p\leq.000$, but not for self-concept, $F(1,47)=.03$, $p\geq.05$. As expected, the older children learned their paired associates

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(M=27.72) faster than their younger counterparts (M=47.49). The high IQ children also learned their paired associates (M=17.91) faster than those in the low IQ group (M=57.30). Self-concept, however, was not found to be a statistically significant factor in the overall learning rate of word pairs. Children with high self-concepts learned their word pairs (M=37.25) at the same rate as their low self-concept counterparts (M=37.99).

Significant results were also obtained for the IQ x Age interaction. $F(1,47)=4.57$, $p \leq .05$. These results indicate that at the primary level, IQ has more of an effect on the learning rate of word pairs than at the intermediate level. The primary, high IQ subjects learned their word pairs faster than the primary, low IQ subjects (M=23.16) and M=71.83, respectively), for an average difference of 48.67 trials per subject. The intermediate, high IQ subjects learned their word pairs an average of 30.10 trials faster than the intermediate, low IQ subjects (M=12.67 and M=42.77, respectively).

Differential Effects of Reinforcement Value on Learning Rate

Each subject's performance was also analyzed for the within-subjects factor, reinforcement value. Separate trials-to-criterion scores were obtained for each liked and disliked paired associate. The five liked word pairs were then summed together, as were the five disliked word pairs, to obtain the reinforcement value score for each. If, for example, a subject obtained a score of 25 for his liked word pairs and a score of 50 for his disliked word pairs, then the subject would have learned the liked word pairs more quickly than the disliked word pairs.

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Reinforcement value was found to be a significant within-subjects factor, $F(1,47)=13.34$, $p\leq.001$. Positive word pairs ($M=32.20$) were learned more quickly overall than negative word pairs ($M=38.16$). As shown in table 1, reinforcement value was also found to be significantly related to self-concept. The analysis revealed a statistically significant Reinforcement Value x Self-concept interaction. $F(1,47)=4.13$, $p<.05$.

Insert Table 1 about here

The interaction indicates that subjects with high self-concepts learned their positive word pairs ($M=31.69$) faster than their lower self-concept counterparts ($M=36.42$), $t(53)=2.13$, $p<.05$. The reverse (i.e., negative) reinforcement value effect was not found for subjects with low self-concepts, $t(53)=.11$. Alternatively, the high self-concept subjects learned their positive word pairs at an average rate of 11.06 trials faster than their negative word pairs, whereas their low self-concept counterparts learned their positive word pairs at an average rate of 3.15 trials faster than their negative word pairs.

The most important result concerns the significant Reinforcement Value x IQ interaction $F(1,47)=11.14$, $p<.001$. These results are summarized in Table 2 and indicate that

Insert Table 2 about here

high IQ children showed essentially no preference in learning liked

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word pairs (M=17.60) over disliked word pairs (M=18.22). The low IQ children, however, did learn their liked word pairs (M=50.50) more readily than their disliked word pairs (M=64.10). These results suggest that the low IQ children used affective assessment in the learning of the word pairs, while the high IQ children did not, or at least not to the same extent. No other significant effects were obtained (11 F's 1).

Discussion

The major result indicates that high IQ students showed essentially no preference in learning liked over disliked word pairs while the low IQ students did express a preference. With low IQ subjects learning positive word pairs more readily. Another major finding was that intelligence appears to have more of an effect on the learning rate of word pairs at the primary level than at the intermediate level. Finally, high self-concept students learned positive words faster than low self-concept students.

The finding of a significant Reinforcement Value x IQ interaction was not reported by August and Rychlak (1978). These researchers had predicted, but did not confirm, that the less intelligent subjects would exhibit greater reinforcement value effects than the more intelligent subjects. This was found in the present study. The high IQ children showed essentially no preference in the learning of liked over disliked word pairs, while the low IQ children learned their liked word pairs more readily than their disliked word pairs.

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This discrepency between the August and Rychlak (1978) study and the present research could be attributed to the difference in the mean IQ levels of the subjects involved in each study. Both studies had similar high IQ levels ($\underline{M}$=119.44, August and Rychlak, 1978; $\underline{M}$=125.42 in the present study), but differed in the low IQ levels ($\underline{M}$=94.50 and $\underline{M}$=71.75, respectively). The mean of the low IQ group in the August and Rychlak (1978) study fell at the lower end of the average range of intelligence. The mean of the low IQ group in the present study fell in the mildly mentally retarded classification range, and all of the subjects in the low IQ group were enrolled in special education classes for the mildly retarded. Thus, the current results may more accurately reflect the low IQ subjects' preference for learning liked word pairs over disliked word pairs than the previous research because of the more accurate operational definition of low IQ's in the present research. These results suggest that the low IQ child uses affective assessment in learning more than the high IQ child. It can be suggested that high intellectual ability precludes the need to use affective assessment in the learning of words. An explanation originally advanced by August & Rychlak (1978) suggests that the deficient verbal learning strategies characteristic of low intellectual ability would make those possessing less intelligence more sensitive to the connotative features of a learning task. This would explain the lack of preference in learning liked versus disliked word pairs on the part of the high IQ subjects, but additional research is necessary to more fully explore the factors contributing to this finding.

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Intelligence was found to have more of an effect on the learning rate of word pairs at the primary than at the intermediate level. Perhaps an intermediate age child, in particular a child with a low IQ who needs to compensate for the lack of ability, has developed various strategies for learning. The primary age child, because he or she may not have yet developed these strategies, may rely more on natural ability. This can explain the larger discrepancy between the high and low IQ subjects at the primary level. Further research is also needed in determining the factors contributing to this finding.

The finding in this study that subjects with high self-concepts learned positive word pairs more readily than negative word pairs is consistent with the results found by Rychlak et al. (1974) with CVC trigrams, and August et al. (1975) with word pairs. These two studies, however, also found that subjects with low self-concepts learned their negative items more readily than their positive items. This was not found in the present study, although they showed much less preference for the learning of positive over negative word pairs than their high self-concept counterparts. It does appear, then, that self-concept is a factor in what is learned and the rate at which content is mastered.

Another finding indicated that students learned liked word pairs more readily than disliked word pairs, which supports the work done by Rychlak (1966). It appears that affective assessment in learning generalizes over many types of learning tasks, and supports the notion that how children feel about material to be learned

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affects what content is leaned and the rate at which it is mastered.

The findings which suggest that self-concept is a significant factor in affective learning also tend to support previous research. The reasoning behind the notion of self-concept affecting learning is that for the child with a high self-concept, the learning of items assessed as positive is more meaningful because it is consistent with the child's positive self image, and is thus learned more readily. For the child with a low self-concept, positively assessed items are incongruent with their negative self image; therefore, negatively assessed items become more meaningful and are learned more readily.

Previous research had demonstrated that although children of different ages can use affective assessment in classifying verbal items as positive or negative (e.g., DiVesta, 1966), it was only the older children that utilized affective assessment in the actual learning and recall of these words (Kail and Schroll, 1974; Cermak, Sagotsky, and Moshier, 1972). It was concluded from these studies that the ability to utilize affective assessment of words in learning lags developmentally behind the ability to affectively evaluate the words themselves. This conclusion was not supported by the results of the present research. Although the older subjects did learn their paired associates faster than their younger counterparts, they did not learn along a positive or negative reinforcement value effect more than the younger subjects. One of the reasons for the discrepancy between this and previous results may lie in the age groups themselves.

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Since the primary group ranged in age from 6.0-8.5 years and the intermediate group from 8.7-11.11 years, a wider age range (3 years) was employed than in previous research in which the various age groups included one year age spans (DiVesta, 1966), two groups of eight and eleven year olds (Kail & Schroll, 1974) and second, fourth and sixth graders (Carmack et al., 1972).

Both the present study and the August and Rychlak (1978) study found main effects for IQ, with the more intelligent children learning their paired associates faster than their low IQ counterparts. August and Rychlak (1978) also found a main effect for self-concept. In accordance with previously mentioned research, they found that subjects with high self-concepts learned their word pairs faster than their low self-concept counterparts. This effect was not found in the present research. The subjects with high self-concepts learned their word pairs at the same rate as their low self-concept counterparts.

Several educational implications arise from the results of this research. How children feel about the material they are to learn affects how much and what kind of material they do learn, as well as the rate at which they learn. Educators may want to present material, especially more difficult material, in a more positive fashion or otherwise increase student's positive attitudes towards the material, since like content is learned more readily than disliked material.

There are also particular implications for special education. In a classroom for the mentally handicapped, there is more homogeneity

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in the students' IQs than in their self-concepts. Thus, teachers would be in a better position to develop programs using affective assessment for these children based on their low IQ level than on their disparate self-concept levels. Since low IQ children learn that which they judge as liked more readily than negatively assessed material, presenting more academic material in a positive manner may increase the student's learning.

Future research should focus on intelligence, employing three IQ levels (high, average, low) to better assess at what level intelligence is the predominate factor in learning and at what levels self-concept and affective assessment influence the learning process. In addition, future research might focus on varying the learning task in order to determine if the effects are generalized to other settings. Finally, research should focus on the factors explaining why reinforcement value effects are stronger for less intelligent subjects.

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Table 1

Mean Number of Trails to Criterion as a Function of Self-concept and Reinforcement Value

Self-Concept	Positive RV	Negative RV
High	31.69 n=24	42.75 n=24
Low	36.42 n=31	39.57 n=31

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Table 2

Mean Number of Trails to Criterion by IQ on Reinforcement Value

IQ	Positive RV	Negative RV
High	17.60 n=30	18.22 n=30
Low	50.50 n=25	64.10 n=25

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